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Twin lid assembly for a bin

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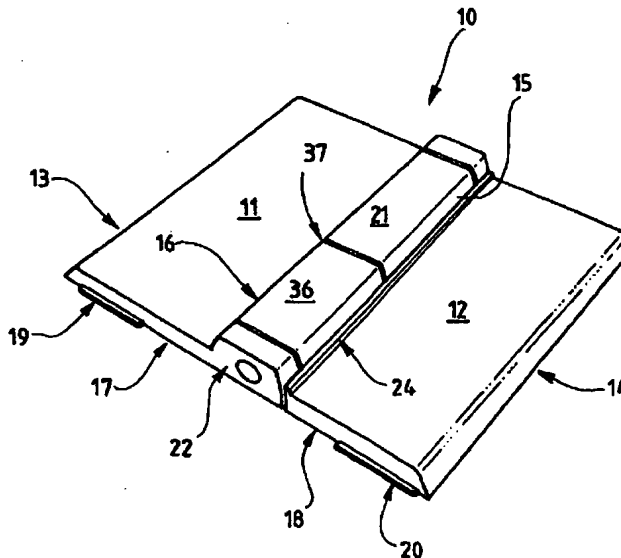
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(54) Title: TWIN LID ASSEMBLY FOR A BIN

(57) Abstract

A lid assembly (1) for a divided bin, the assembly having two lids (11, 12), each being separately operable to access different zones within the bin interior, each lid (11, 12) having a front edge (13, 14) adapted to be adjacent an edge of the bin and a rear edge (15, 16) adapted to be over an internal portion of the bin, the rear edge (15, 16) of each lid being pivotally connected along a common axis to the bin.



## TITLE

## TWIN LID ASSEMBLY FOR A BIN

## FIELD OF THE INVENTION

This invention relates to a lid assembly for a  
5 bin and particularly relates to a twin lid assembly which  
can be used on a refuse or recycling bin.

## BACKGROUND ART

In Australia, and many other countries, domestic  
dwellings are provided with two refuse bins which are more  
10 or less identical. The bins are made from injection-  
moulded plastic and have a typical volume of about 260l.  
The bin is square when viewed in plan and has a slight  
taper from a wider top mouth to a narrower base. The bin  
has a hinged top lid, and a pair of bottom wheels mounted  
15 to an axle which allows the bin to be tilted and wheeled  
around. These bins are sometimes known as "wheelie bins".

Two bins are now provided, usually with colour  
coded lids, to distinguish between the bins. One bin is  
for food scraps and non-recyclable waste, while the other  
20 bin is used for recyclable products such as plastic, paper,  
cardboard, glass and metal.

The recycling bin is usually divided by an  
internal plastic bin divider into two separate zones. The  
householder does some low-level separation of recyclable  
25 waste and places recyclable waste into the separate zones.  
Typically, one of the zones is for paper and cardboard,  
while the other zone is for plastic, glass and metal.

To date, the recycling bin has been provided with  
a single overlying lid, which apart being of a different  
30 colour, is otherwise identical to the lid of the non-  
recyclable waste bin. This means that it is not generally  
possible to access only one of the internal zones of the  
recycling bin, as lifting the lid will expose both zones.  
It is therefore possible to inadvertently place recyclable  
35 material in the wrong zone.

## OBJECT OF THE INVENTION

The present invention has developed a lid  
assembly which can be fitted to a divided bin and where the

lid assembly has two lids which are separately operable to access only a desired internal portion of the bin.

The lid assembly can be designed to reduce water leakage into the bin and/or to facilitate emptying of the bin with reduced tendency for the bin contents to become fouled with the lid.

The lid assembly can be designed to retro fit to existing bins having a single lid by using pivot blocks.

The hinge axis of the lid assembly can be made to approximately overlie the top of the dividing panel in the bin to reduce placement of material into the wrong zone in the bin.

The hinge axis can be positioned to extend across the bin interior which allows the lids to be made smaller and therefor easier to operate.

It is an object of the invention to provide a lid assembly which may overcome the abovementioned disadvantages or provide the consumer with a useful or commercial choice.

In one form, the invention resides in a lid assembly for a divided bin, the assembly having two lids, each being separately operable to access different zones within the bin interior, each lid having a front edge adapted to be adjacent an edge of the bin and a rear edge adapted to be over an internal portion of the bin, the rear edge of each lid being pivotally connected along a common axis to the bin.

The rear edge is preferably at or adjacent an upper central portion of the bin (when viewed in plan), this normally being the area where the top of the bin dividing panel is situated to divide the bin into two equal internal zones.

The divided bin can be a domestic rubbish bin, such as a recycling bin or a non-recycling bin. These bins can be of known design which are large injection-moulded plastic wheelie bins having a pair of wheels mounted to an axle at the bottom of the bin, and a top handle to allow the bin to be tilted backwards and wheeled around.

If the bin is a divided bin, one type of divider which is already in use is a plastic panel type divider which divides the bin into two side-by-side zones which may be of equal or non-equal volume, the panel being clipped  
5 into position.

The lid assembly may be formed from injection-moulded plastics. If the lid assembly is used for a recycling bin, each lid can be formed from a different coloured plastics to readily identify it. Otherwise,  
10 identifying stickers can be applied to each lid to identify the different zones for recycling.

Each lid may have a top wall and a depending peripheral side wall or lip which can function to strengthen the lid. The lid is preferably designed such  
15 that when in a closed position, the top wall has a slight downward slope to it to drain water away from the rear edge of the lid and towards and over the front or side edges of the lid.

As the rear edge of each lid in use overlies the  
20 top area of the bin (and typically over a central portion of the bin), it is desirable to prevent, or at least reduce, the possibility of water entering into the bin interior at the junction between the rear edges of each of the two lids. Thus, it is preferred that a raised lip or  
25 rib is provided on the top wall and adjacent the rear edge to prevent water flowing over the rear edge should the bin be on an uneven surface.

As domestic bins are usually emptied mechanically by a mechanical gripper arm lifting and inverting the bin  
30 and vigorously shaking the contents of the bin into a refuse truck, it is desirable that the bin lid includes deflectors to assist in the rubbish falling into the refuse truck. Thus, the underside of the bin lid may be provided with deflectors to deflect rubbish during emptying of the  
35 bin. The deflectors may include an array of spaced apart ribs.

Also, to minimise rubbish being trapped or accumulating on the depending lip or side wall of the lid,

it is preferred that the depending lip on the front edge of the lid is angled forwardly to reduce impact of rubbish and to reduce accumulation of rubbish in this area.

To assist in raising each lid, there may be provided lift tabs extending from an edge of the lid. The lift tabs may be integrally moulded with the lid and can provide a convenient holding point to allow the lid to be lifted and lowered without having to touch the interior of the lid (which may be contaminated).

The lids may be pivotly connected relative to the bin. It is preferred that separate pivot pins are provided to pivotly connect each lid, and it is preferred that these pivot pins are axially aligned relative to each other. The lids may be pivotly attached relative to a top side area of the bin through pivot pins.

It is also preferred that the lids are pivotly connected to each other as well as relative to the bin. In one form, this can be achieved by having the rear edge of each lid formed with projections and recesses which mate with each other such that the lids can be coupled together through an adjacent pair of projections.

It is preferred that the lids are coupled relative to the bin through pivot blocks. The pivot blocks can be separately formed and attached to the bin to pivot the lids to the bin via the pivot blocks. The pivot blocks may be formed from any suitable material such as plastics and can be attached to the bin by any convenient means. One preferred means is a simple snap-locking arrangement whereby the pivot blocks can be snap-locked into position through a suitable aperture in the bin. The use of separate pivot blocks is desired as it allows a bin to be moulded to fit a normal single lid, or the lid assembly. All that is required is to form an opening in a suitable part of the bin through which the pivot block can pass to snap it into position.

#### BRIEF DESCRIPTION OF THE FIGURES

An embodiment of the invention will be described with reference to the following drawings in which

Figure 1 is a top view of a lid assembly;

Figure 2 is a top view of one lid of the lid assembly;

Figure 3 is a bottom view of the lid assembly of Figure 2;

Figure 4 is a section view of a front edge of the lid of Figure 3;

Figure 5 is a view of a pivot block about to be pushed into a side portion of the bin;

Figure 6 is an assembled view of Figure 5;

Figure 7 is an alternative type of pivot block;

Figure 8 a section view showing a portion of the bin lid connected to the pivot block through a pivot pin;

Figure 9 shows the connection of the bin lids to each other through a pivot pin;

Figures 10 - 13 are section views of the hinged area of the bin lids.

#### BEST MODE

Referring to the figures, and initially to Figure 1, there is shown a lid assembly 10 which can be attached to a recycling bin (the bin not being shown). Lid assembly 10 is formed from injection-moulded plastics (this being optional) and has two lids 11, 12 which are each separately operable, by which is meant that each lid 11, 12 can be lifted or lowered without the other lid being lifted or lowered. If lid assembly 10 is placed over a recycling bin of the type having a central divider, it can be seen that lid 11 can be lifted to access one side of the divided bin, while lid 12 can be lifted to access the other side. In use, each lid has a front edge 13, 14 which overlies, or is adjacent to, an upper edge of the bin mouth. Each lid also has a rear edge 15, 16 which in use is over a central portion of the bin. It is not essential that the rear edge is exactly over a central portion of the bin, and it is envisaged that the lid assembly may be formed from unequally sized lids which can be used on recycling bins where the central partition is not centrally placed but is, in fact, placed more towards one side of the bin.

Lids 11, 12 are pivotally connected relative to the bin and along a common axis which provides convenience for use of the lid and also maximises the lid open access area into the interior of the bin.

5 Each lid has a top wall and a peripheral depending lip or side wall 17, 18, the function of which is to provide strength to the bin lid and also to facilitate its effective sealing of the bin and also to provide convenient pivot points.

10 To allow each bin lid to be conveniently opened and closed, there are provided lift tabs 19, 20 on each side of each lid. The tabs are integrally formed with the lid and project outwardly therefrom and can be gripped by a person's fingers to lift and lower each lid without  
15 having to grip the underside of the lid which may be contaminated.

Figure 2 shows a top view of one of the bin lids 11. It can be seen that each bin lid 11, 12 is identical to allow a single moulding reverse to produce a left and  
20 right lid. The lid 11 has a rear edge 15 which is defined by a pair of projections 21, 22 which are spaced apart and between which is defined a recess 23. This arrangement allows the left and right-hand lids to fit together as illustrated in Figure 1 such that the lids can be hingedly  
25 or pivotly connected along a common axis to the bin.

Each bin lid 11, 12 has a slight downward incline or slope from the rear edge to the front edge so that rain water will naturally drain away from the rear edge portion. To minimise water passing over the rear edge  
30 and therefore possibly into the bin, a lip 24 is provided adjacent the rear edge to reduce water passing over the rear edge. Lip 24 is also illustrated with reference to Figures 10 - 13.

The bottom of each lid is as illustrated in  
35 Figure 3. The bottom wall of each lid has a deflector in the form of a series of spaced apart ribs 25 which function to deflect rubbish during emptying of the bin. The front edge 13 is also forwardly inclined as better illustrated in



Figure 4, the function of which is to reduce impact of rubbish as the bin is emptied. The inclined front edge also minimises any rubbish being trapped between ribs 25 and the front edge 13.

5           The bin lids are coupled to a side portion of the bin via pivot blocks 26 illustrated in Figures 5 - 7. Referring to Figure 5, there is shown an upper edge portion 27 of a recycling bin. The upper edge portion has a vertically extending rim 28 and an outwardly extending  
10           horizontal rim portion 29. In practice, the bin lid (be it a normal single lid, or the lid assembly according to the invention), has a depending side wall 17 which extends over the vertical rim 28 and this arrangement is illustrated in Figure 8.

15           The advantage of having a separate pivot block 26 is that it is formed separately and does not need to be integrally part of horizontal rim 29. This means that existing bins can be retro-fitted merely by providing a slot 30 into which pivot block can be pushed. Also, by  
20           having the pivot block separately formed, new bins can be formed with the slot integrally provided and these bins can then be fitted with conventional lids or with the lid assembly according to the invention.

          Pivot blocks 26 are formed from injection-moulded  
25           plastics (this being optional). The pivot blocks can snap-lock through slot 30 by having extending ramped shoulders 31 which can be slightly deformed as the pivot block is pushed through slot 30 and which snap back into position to prevent, or to make it difficult, for the pivot block to be  
30           removed from the bin. Pivot block 26 has a circular aperture 32 extending therethrough which can accept a plastic split pivot pin 33 which is illustrated in Figure 8. Pivot pin 33 is of known design and has a pair of spring fingers 34, 35 which have ramped nose portion such  
35           that pivot pin 33 can be pushed through aperture 32 and will snap-lock into position once pushed through.

          Figure 8 shows the pivot arrangement. In this figure, pivot block 26 has been pushed through the slot to

5 snap-lock it into position. Above the pivot block is placed projection portion 22 which is better illustrated in Figures 1 and 2. This portion will therefore pivot lid 11 to pivot block 26. Adjacent to projection 22 is provided the projection portion 36 of lid 12 (see Figure 1), this projection portion fitting into the recess portion 23 (see Figure 2). The plastic pivot pin 33 is then pushed through the aligned apertures and snap-locked into position which hingedly couples pivot lid 11 and pivot lid 12 to each other and also to pivot block 26. A similar arrangement is found on the other side of the lid assembly where a second pivot block pivots the lids together.

10 The lids are also coupled together directly to each other at junction 37 (see Figure 1). This arrangement is illustrated in Figure 9 which shows projection portion 21 (forming part of lid 11) and projection portion 36 (forming part of lid 12) being coupled together through a short plastic snap-locking pivot pin 38. Thus, at junction 37, lids 11 and 12 are also coupled to each other.

20 Figure 7 shows an alternative version of a pivot block. In this version, a pair of end walls 40, 41 are formed such that they can be pushed together to facilitate pushing of the pivot block through slot 30 to snap-lock the pivot block to the bin.

25 Figures 10 - 13 show in section portions of lid 11 and 12 along the common pivot axis. Figures 12 and 13 show how the two lids can be opened.

30 It should be appreciated that various other changes and modifications may be made to the embodiment described without departing from the spirit and scope of the invention.

## CLAIMS:

1. A lid assembly for a divided bin, the assembly having two lids, each being separately operable to access different zones within the bin interior, each lid having a front edge adapted to be adjacent an edge of the bin and a rear edge adapted to be over an internal portion of the bin, the rear edge of each lid being pivotally connected along a common axis to the bin.
2. The assembly of claim 1, wherein the rear edge of each lid is adjacent an upper central portion of the bin.
3. The assembly of claim 2, wherein each lid has a top wall and a depending peripheral side wall, the top wall having a slight downward slope to drain water away from the rear edge of the lid and towards and over the front or side edges of the lid.
4. The assembly of claim 3, wherein a raised lip or rib is provided on the top wall and adjacent the rear edge to prevent water flowing over the rear edge should the bin be on an uneven surface.
5. The assembly of claim 4, wherein the lid includes deflectors on the underside of the lid to assist in guiding rubbish into the refuse truck.
6. The assembly of claim 5, wherein the deflectors are an array of spaced apart ribs extending transversely to the pivot axis of the lid.
7. The assembly of claim 6, wherein the depending side wall on the front edge of the lid is angled forwardly to reduce impact of rubbish and to reduce accumulation of rubbish in this area.
8. The assembly of claim 1, wherein separate pivot pins are provided to pivotly connect each said lid to a top side area of the bin, the pivot pins being axially aligned relative to each other.
9. The assembly of claim 8, wherein the lids are pivotly connected to each other as well as relative to the bin.
10. The assembly of claim 9, wherein the rear edge of each lid is formed with projections and recesses which mate

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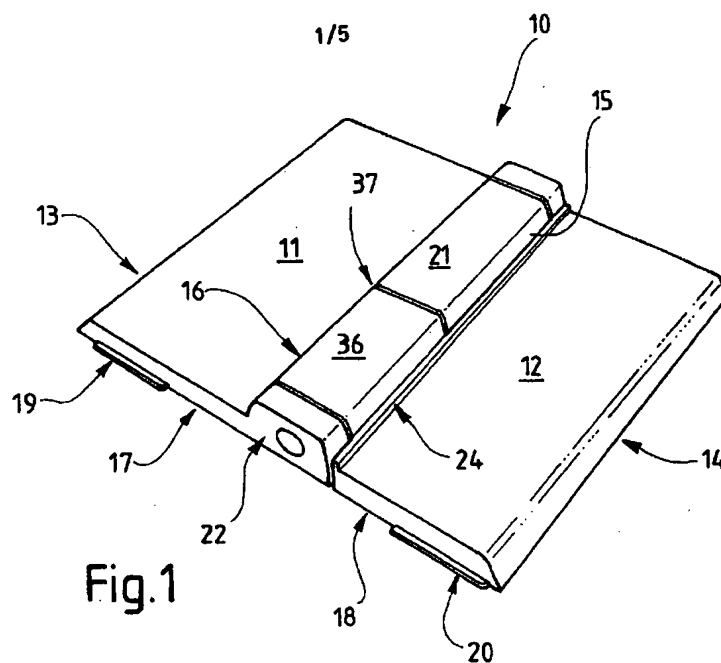
with each other such that the lids can be coupled together through an adjacent pair of projections.

11. The assembly of claim 10, wherein the lids are connected to the bin through pivot blocks.

5 12. The assembly of claim 11, wherein the pivot blocks are formed separately and attached to the bin to pivot the lids to the bin via the pivot blocks.

13. The assembly of claim 12, wherein the pivot blocks are snap fitted to the bin.

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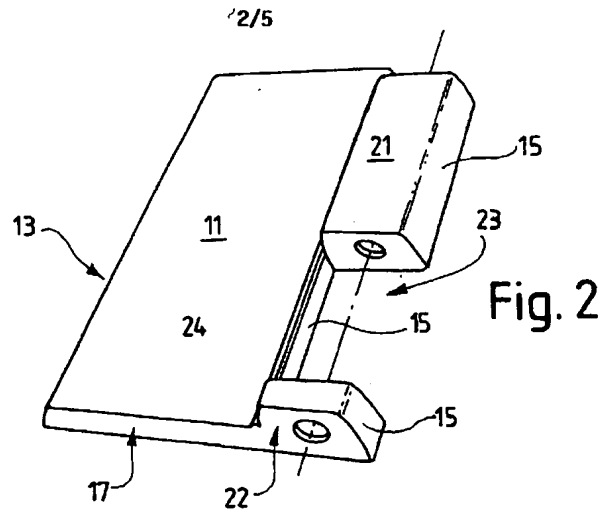


Fig. 3

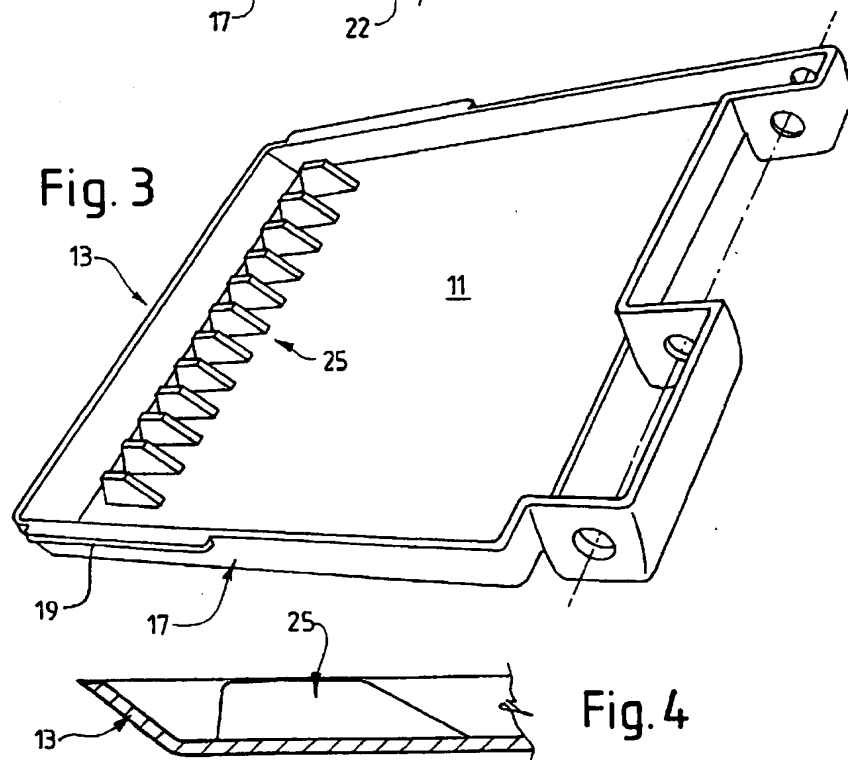
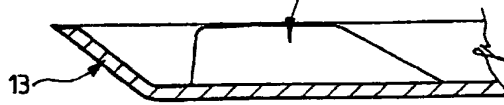


Fig. 4



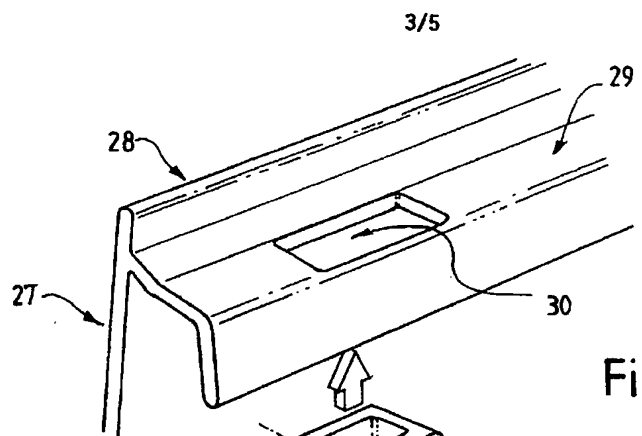


Fig. 5

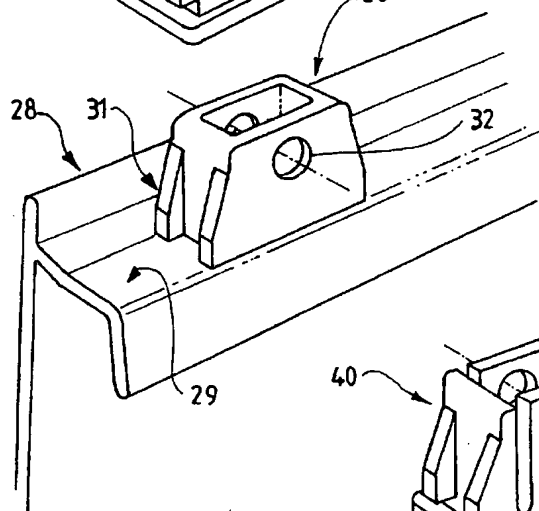
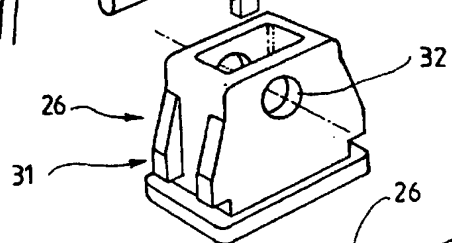


Fig. 6

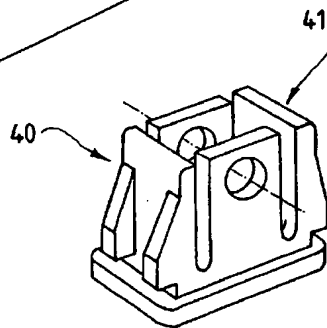


Fig. 7

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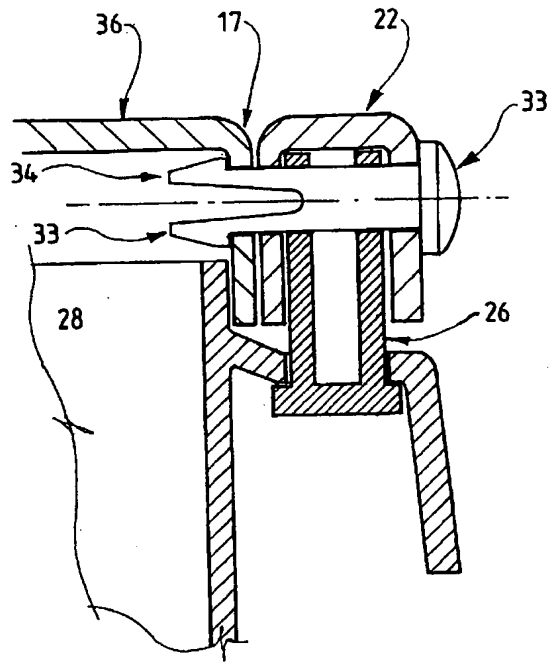


Fig. 8

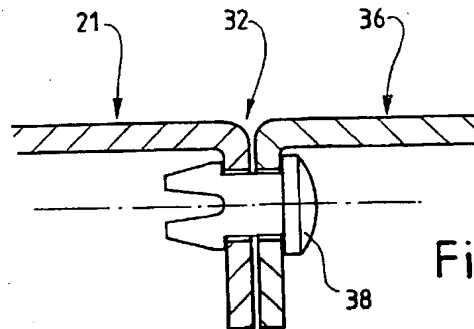


Fig. 9



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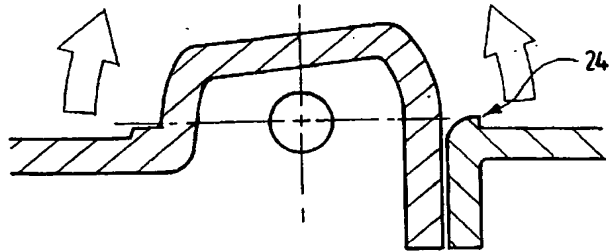


Fig. 12

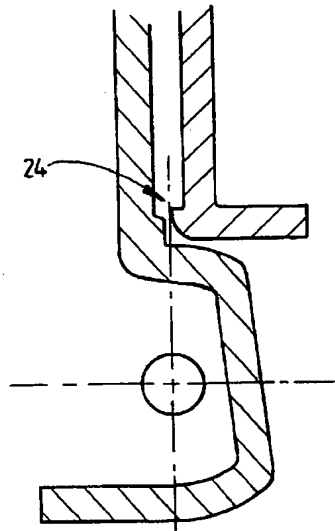


Fig. 13